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ABSTRACT

The six papers in this collection focus on science and technology libraries: (1) "Human Aspects of Electronically-Stored Information: The Library User" (A. J. Meadows, United Kingdom); (2) "Untersuchung Menschlicher Aspekte bei den Elektronisch Gespeicherten Informationen: Ansichten des Leiters eines Bibliothekskollektives = Human Aspects of Electronically Stored Information: Point of View of a Director of Library Staff" (Dieter Schmidmaier, East Germany); (3) "Human Factors and Electronically Stored Information: The Publisher's Point of View" (Christine Baldwin, United Kingdom); (4) "Adaptation im Bibliotheksbau--Gilt das auch fur Spezialbibliotheken? = Adaptation in Library Construction: Does This Also Apply to Special Libraries?" (Dieter Schmidmaier, East Germany); (5) "ADONIS: The Experience to Date" (Barrie Stern, the Netherlands); and (6) "ADONIS: The View of the Users" (David Bradbury, United Kingdom). The last two papers were delivered at a joint meeting of the Section of Science and Technology Libraries and the Section of Serial Publications. (CGD)

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53rd IFLA COUNCIL
& GENERAL CONFERENCE
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Division of Special Libraries

SECTION OF SCIENCE AND TECHNOLOGY LIBRARIES

Session: 135 Wednesday 08.30 – 10.00

ED300011

Human aspects of electronically-stored information: the library user *(16-SCIE-3-E)*	A J Meadows Loughborough University UK
Untersuchung menschlicher Aspekte bei den elektronisch gespeicherten Informationen: Ansichten des Leiters eines Bibliothekskollektives *(90-SCIE-5-G)*	Dieter Schmidmaier Bergakademie Freiberg DDR
Human factors and electronically stored information: the publisher's point of view *(20-SCIE-4-E)*	Christine Baldwin Pergamon Compact Solution London UK
Adaptation im Bibliotheksbau — Gilt das auch für Spezialbibliotheken? *(5-SCIE-1-G)*	Dieter Schmidmaier Bergakademie Freiberg DDR

Division of Special Libraries

Division of Collections and Services

SECTION OF SCIENCE AND TECHNOLOGY LIBRARIES SECTION OF SERIAL PUBLICATIONS

Joint Meeting
Session: 127 Tuesday 17.00 – 18.30

ADONIS: the experience to date *(13-SER-2/SCIE-2-E)*	Barrie T Stern ADONIS Project Amsterdam The Netherlands
ADONIS: the view of the users *(110-SER-3/SCIE-6-E)*	David Bradbury British Library Document Supply Centre Boston Spa UK

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16-SCIE-3-E

HUMAN ASPECTS OF ELECTRONICALLY-STORED INFORMATION: THE LIBRARY USER

A.J. MEADOWS, *Loughborough University, UK*

Automation of production is typically hidden from consumer, so that all they see is an already familiar end-product. Electronic information handling has followed the same pattern. Automation hit the printers many years ago and has since spread to publishers; but the reader still receives a traditional printed book or journal as the end-product. Similarly, librarians have been concerned with automated information handling for a long time, but usually without involving their customers. Library users will have noted, of course, such external changes as new methods of checking out books, but these have not affected them in any fundamental way. For example, automation at the check-out point has often coincided with a reduction in library staffing levels. This means that factors which interest readers, such as the length of time they have to stand in a queue, may seem to have changed very little by automation.

Even if this shielding of the end-user has been mainly accidental, rather than deliberate policy, it has made good sense from the library viewpoint. Most readers tend to be conservative in the way they acquire information. Their interest is in the information itself, rather than in the method of acquiring it (which fascinates the librarian). Hence, they prefer to cling to methods already learnt, rather than spend time – waste it, from their viewpoint – on learning new tricks. However, customer expectations may now be changing, for two reasons. The first is the increasing familiartiy of at least the younger generation of readers with the computer handling. The second is the increasing amount of primary information (which interests the reader), as compared with the secondary information (of more interest o the librarian), now being handled in digital form. The basic library scenario for the future is therefore likely to be the delivery of information from increasingly diversified sources. At one extreme, some readers will fell unhappy with almost any form of automation that affects them directly. At the other, some are already demanding direct personal access to all forms of automated information resources.

This divergent demand is already beginning to appear in online searching of databases. Traditionally, this activity has been left to expert intermediaries in the library: now some end-users are becoming interested in doing their own searches. If customers wants are to be properly satisfied in the future, librarians will find they have to respond in a greater variety of ways – training some, assisting others and actually doing the work for yet others. Online searching suggests some of the questions this diversifications is likely to raise. To what extent will it lead to increased demands on staff time? Could training people to do their own searching actually save staff time? What about the cost of searching (and especially who pays for it)? Thus, if database producers and hosts decide the end-user is their best target, a library with a limited budget might do better by decentralising retrieval.

These questions must already be asked about one current library activity aimed at readers – online public access catalogues (OPACs) [1]. If these are to work as planned, all catalogue users should be able to access them. So the system must cater for everyone from infrequent and computer-illiterate readers through to professional searchers. Methods of doing this so that neither type of user is disadvantaged are still under development. A good example is the type of command language to be used [2]. Experienced computer users are accustomed to computer responses and hardly notice the words in which they are couched. Naive users, on the contrary, expect to be 'spoken to' in a polite and friendly way. Brusque responses on the screen can discourage them. But a change to more 'friendly' responses can annoy experienced users, who see no need for them. Hence, even at this very basic level, differing needs appear.

One thing is clear. Computer-accessible records must contain the information the reader considers necessary, which is not always the same as that prescribed as necessary by the librarian. There is a fundamental point here. The designers of information systems sometimes find it difficult to consider information handling from the viewpoint of the average reader. Studies of viewdata have shown that this provides room for endless confusion [3]. For example, users of viewdata build up an expectation of what information will appear on the screen next. If designers' assumptions differ from these expectations, then major information retrieval problems can arise.

In the research world, users are beginning to integrate their information-handling activites at a single work-station. The latter may be used in stand-alone mode for such activites as word processing or compiling a personal bibliography, as part of a local area network (LAN) for access to a library catalogue, and as part of a wide area network (WAN) for retrieval of information from a datbase. This does not necessarily mean that libraries will be by-passed, for, as we have noted, some customers will continue to need assistance. What it does mean is that readers sitting in their departments at their terminals will expect assistance, libraries may find themselves competing with other sources of advice (such as the computer centre). This raises important questions concerning the nature and scale of advice that can be provided remotely by libraries.

All these points reflect a more general trend toward emphasising user wants and needs in activities previously dominated by library considerations. If the user is going to play a large role in information handling and retrieval, then the activity must be structured for the user. Yet, simutaneously, the requiremnets of professional information handlers must be serviced. Consequently, both information and handling technique must be capable of alternative presentation according to the user. Fortunately, the flexibility of automated information handling makes such individualisation possible, but there is a long way to go yet before it is perfected.

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90-SCIE-5-G

UNTERSUCHUNG MENSCHLICHER ASPEKTE BEI DEN ELEKTRONISCH GESPEICHERTEN INFORMATIONEN: ANSICHTEN DES LEITERS EINES BIBLIOTHEKSKOLLEKTIVES

Dr. Dieter SCHMIDMAIER, Bibliotheksrat, *Member of the Standing Committee of the Science and Technology Libraries Section and 2nd Vice-President of IATUL, Bergakademie Freiberg, wissenschaftliches Informationszentrum, Freiberg, DDR*

Mit der wissenschaftlich-technischen Revolution gehen progressive Veränderungen in der Arbeit einher. Die Reichweite der wissenschaftlich-technischen Umwälzungen nimmt in einem nie dagewesenem MaBe zu. Es ist kein Bereich der gesellschaftlichen Arbeit denkbar, für den die wissenschaftlich-technische Revolution ohne entscheidende Konsequenzen bleibt. Nicht nur körperliche, sondern auch formalisierbare Funktionen gehen mehr und mehr an die Technik über. Der Computer wird zum individuellen geistigen Arbeitsmittel des Menschen.

Die massen hafte Anwendung moderner Informations- und Kommunikationstechnologien wird die Arbeit in den Bibliotheken, in den Informationseinrichtungen und mit den Informationatitonsquellen grundlegend verändern. Auch für die Bibliotheken gilt wie für alle Bereiche, in denen moderne Technologien angewendet werden, die dominierende Rolle des Menschen:

1. Der Mensch ist und bleibt geistiger Schöpfer jeder Technologie.
2. Zielstellung und Zweckbestimmung jeder Technologie geht vom Menschen aus.
3. Der Mensch ist und bleibt in jedem technologischen Prozess die bewegende Kraft.

Tendenzen in der Entwicklung von Informations- und Kommunikationstechnologien zeigen, dass sich in den Bibliotheken unter Führung des Bibliothekars ein Netz stark miteinander verflochtener Einzeltechnologien herausbildet, dad den Zugang zu wissenschaftlichen Informationen erleichtert und auf nie dagewesene Weise

beschleunigt. Immer mehr setzt sich die Erkenntnis durch, dass die Entwicklung von Informations- und Kommunikationstechnologien den Kern der wissenschaftlichtechnischen Revolution bildet. Nur durch sie werden sich in den 90er Jahren revolutionäre Umwälzungen in den Produktivkräften vollziehen, mit denen zugleich tiefgreifende soziale Wirkungen verbunden sind.

Die vermehrte anwendung dieser Techologien führt zu einem neuen Verständnis des Zugangs zu Informationen und daher zu neuen Informationsbedürfnissen. Eine besonders hohe Verantwortung kommt den Vermittlern zwischen den gespeicherten Informationen und den Nutzern zu, also den Bibliotheksmitarbeitern, und diese Verantwortung steigt mit neuen Computergenerationen weiter an.

Ein Problem ist die Untersuchung menschlicher Aspekte bei den elektronisch gespeicherten Informationen. In den Bibliotheken betrifft dies sowohl die automatisierten Informationsrecherchesysteme als auch die Online-Kataloge. Der Einsatz von Computern in den Bibliotheken begann in den 50er Jahren mit der Bibliotheksverwaltung, erfasste später die Ausleihe und die Erwerbung und schliesslich die Katalogisierung. Ebenfalls in den 50er Jahren begann der Einsatz von Computern in der Information/ Dokumentation bei der Publizierung von Referateorganen. Anfang der 60er Jahre setzte mit der Methode der Selektiven Informationverbreitung eine neue Qualität in der gezielten Verteilung von wissenschaftlichen Informationen ein. Zu Beginn der 70er Jahre wurden in den Bibliotheken der USA Bildschirmgeräte mit Anschluss an Datenbasen eingesetzt; Europa folgte in der zweiten Hälfte der 70er Jahre. Seit Anfang der 80er Jahre erfolgt weltweit in den Bibliotheken der massenhafte Einsatz von Bildschirmageräten mit dem Anschluss an Datenbasen auf fast allen Wissenschaftsgebieten.

Die internationalen nichtstaatlichen Organisationen IFLA, IATUL und FID haben sich in den letzten Jahren auf ihren Konferenzen und in ihren Publikationen erfreulicherweise sehr intensiv mit dem Einfluss moderner Technologien auf Stellung, Aufgaben und Arbeitsweise der Bibliotheken beschäftigt. Ich möchte nur erinnern an

- die IFLA-Konferenz 1983 in München, die unter dem Generalthema "Libraries in a technological world" stand und wo sich viele Kolleginnen und Kollegen zu diesem Problem geäussert haben.
- die IFLA-Konferenz 1986 in Tokio, die unter dem Generalthema "New horizons of librarianship towards the 21st century" stand und wo ein stark beachtetes Kolloquium "The influence of information technologies on libraries and librarianship" durchgeführt wurde[2]
- die IATUL-Konferenzen 1981, 1983 und 1985, die mit ihren Themen "Libraries and the communication process", "The future of serials" und "The future of information resources for science and technology and the role of libraries" mit wesentlichen Biträgen zu unseren Problemen Stellung nahmen.[3]

Ich habe an den meisten dieser Beratungen teilgenommen und in Vorbereitung auf diesen Vortrag mit grossem Interesse die Ergebnisse in den Publikationen noch einmal nachgelesen. Des weiteren habe ich mehrere Fortschritts- und Erfahgrungsberichte studiert, in denen eine beeindruckende Fülle von Einzeluntersuchungen ausgewertet worden ist.[4] Und schliesslich habe ich aus meiner Position als Leiter eines Bibliothekskollektives, als Mitglied eines stängen Komitees in der IFLA und als 2. Vizepräsident der IATUL persönliche Erfahrungen überdacht und abgewogen. Ich glaube, es gibt drei grosse Säulen, die unser Thema betreffen und die ich als Thesen formulieren möchte:

These 1:
Moderne Informations- und Kommunikationstechnologien werden zum immanenten Bestandteil der internen und externen Arbeit der Bibliotheken und erweitern deren Aufgabenstellung und verändern deren Arbeitsweise und Strukturen wesentlich.

These 2:
Die Anwendung von Technologien, die zu elekronisch gespeicherten Informationen führen, erfordern die konsequente Führung des Prozesses durch erfahrene Leiter und eine ständige Zusammenarbeit mit Spezialisten in der Informatik, Rechentechnik und Datenverarbeitung.

These 3:
Die Meisterung von Technologien elektronisch gespeicherter Informationen impliziert einen hohen Bildungsanspruch. Die Bildung muss einen den gesellschaftlichen Erfordernissen entsprechenden Vorlauf schaffen – sowahl für die Mitarbeiter als auch für die Nutzer.

Zur ersten These haben sich viele Fachkollegen aus vielen Ländern umfassend geüssert. Ich möchte mich deshalb nur zur zweiten und dritten These äussern.

I. Der Führungsanspruch
Elektronisch gespeicherte Informationen werden von den Nutzern der Bibliotheken dankbar angenommen. Der hohe Aufwand an Personal, Material, Technik und Organisation verlangt eine straffe Führung des Prozesses durch erfahrene Leiter. Einige Elemente dieser Führungstätigkeit seien nachfolgend aufgeführt.

1. Der Leiter muss in der Lage sein und bereit sein, prognostisch zu denken und zu handeln, d. h. er muss allem Neuen aufgeschlossen sein, Vorbild beim Einsatz der modernen Technik sein und sich an die Spitze des Prozesses stellen und nicht daneben oder dahinter. Er muss sich selbst qualifizieren und auf jede Neuerung vorbereitet sein und rechtzeitig reagieren. Und: Er muss immer das Alte, Bestehende sinnvoll mit diesem Neuen verbinden.
2. Der Leiter mus die mit dem Einsatz der modernen Technik zusmmenhängenden Personalfragen rechtzeitig lösen, die räumlichen und materiellen Voraussetzungen schaffen und stets Gespür für ein optimales Kosten – Nutzen – Verhältnis haben.
3. Der Leiter muss erkennen, dass der massenhafte Gebrauch von automatisierten Informationsrecherchesystemen und Online-Katalogen zur Kooperation und Koordinierung führt und dass gerade die Vernetzung neue Fürungsprobleme aufwirft – gerade dort, wo über den Betriebszaun hinaus Aufgaben gemeinsam bewältigt werden sollten. Jeder weiss, dass automatisierte Informationsrecherchesysteme und Online-Kataloge heute nicht mehr allein betrieben werden können. Die Schaffung kooperativer Formen (Bibliotheken als Bestandteile von Computerzentren, lokale Verbundnetze, fachliche Bibliotheksnetze und andere nationale und insbesondere internationale Formen) stellt hohe Anforderungen an das Können des Leiters. Primär von seiner Einstellung zu diesen Problemen hängen Erfolg oder Misserfolg der Unternehmungen ab.
4. Die Effektivität der Nutzung von automatisierten Informationsrecherchesystemen und Online-Katalogen ist abhängig von der Lösung umfangreicher wissenschaftsorganisatorischer Probleme. Im Mittelpunkt stehen dabei medizinische, psychologische, soziologische und organisatorische Prozesse an den Mitarbeiter- und Nutzerarbeitsplätzen, die in erster Linie Forderungen an die Gestaltung der Arbeitsinhalte und Arbeitsbedingungen durch die länger andauernde Bildschirmarbeit beinhalten (z. B. Flexibilität, optimale Beleuchtung, Eliminierung von Blenderscheinungen, Strahlungsabgabe des Bildschrims, optimale Arbeitsunterbrechung). Das gilt um so mehr, je mehr der Integrationsgrad steigt und die Automatisierung an den einzelnen Arbeitsplätzen heranrückt. Neben der Umgestaltung von Arbeitsplätzen führen wissenschaftsorganisatorische Massnahmen zur Standardisierung von Arbeitsabläufen, zur Struckturierung nichtstrukturierter Prozesse, zur Erweiterung des Anteils formalisierbarer Arbeiten und zur Reduzierung von Routinearbeiten.
5. Der Leiter ist auch für die Öffentlichkeitsarbeit verantwortlich, denn "Von nichts wird nichts". Automatisierte Informationsrecherchesysteme und Online-Kataloge müssen propagiert werden. Ihr Gebrauch stellt eine wesentliche Veränderung gegenüber der Nutzung von "papiernen" Bibliographien und Katalogen dar. Und: Der Leiter sollte immer um eine nutzerfreundliche Gestaltung und einen einfachen Gebrauch der automatisierten Informationsrecherchesysteme und Online-Kataloge kämpfen. Er muss sich dafür einsetzen, dass Katalogisierungsregeln neu durchdacht und überarbeitet werden, um die Besonderheiten der elektronischen Speicherung optimal ausnutzen zu können.

II. Der Bildungsanspruch
An dieser Stelle muss betont weden, dass eine Trennung von Bildung für Mitarbeiter und Bildung für Nutzer nicht immer möglich ist, weil es einen dialektischen Zusammenhang durch dem gemeinsamen Gebrauch des Computers gibt. Die Verbesserung der Recherchequalitäten hängt ab von[5]

- der Qualifizierung der Informationsspezialisten
- dem Ausbau der dezentralen Beratung
- der Schulung der Nutzer

und eine häufigere Nutzung hängt ab von[6]

- der Informationsrecherchesprache
- einem kurzen Zeitraum zwischen Erscheinen der Quelle und ihrer Aufnahme in das Recherchesystem
- der Aufnahme aller Kategorien von Informationsquellen, insbesondere von grauer Literatur.

Der Leiter will alles leicht zugänglich haben, leichter als in der "Papierform". Die Bibliothekare behaupten, dass ihre traditionellen

Kataloge leicht zugänglich seien und die neuen schwer, doch das stimmt nicht[7]. Zettel- und Bandkataloge haben ihre Tücken und Probleme:

- je grösser desto unhandlicher sind sie
- der Zugriff ist durch die physikalische Form beschränkt
- die Fortfürung ist sehr aufwendig
- der Nutzer kennt die Strukturen und die umfassenden unbequemen Regelwerke nicht.

Erfahrungen zeigen, dass Online-Kataloge von den Nutzern sehr gut an- und aufgenommen werden. Durch Online-Kataloge steigt das Ansehen der Bibliothek. – Und in Online- Katalogen steht der Fonds schneller zu Verfügung.

Allerdings erfordert die exakte Formulierung der Wünsche eine gute Beherrachung der Muttersprache, Fähigkeiten zum logischen Denken und zur Bildung exakter Begriffe und die Beherschung der entsprechenden Fremdsprachen, in denen die automatisierten Informationsrecherchesysteme und Informationsquellen erscheinen.

Wie ein roter Faden zieht sich durch alle Beiträge der letzten 10 Jahre weltweit die Forderung nach höherer Bildung des Bibliothekars und des Nutzers, mit der die höheren Ansprüche an den Zugang zu wissenschaftlichen Informationen befriedigt werden können und nach einer neuen Berufsethik, die mit den höheren Aufgaben in engem Zusammenhang steht.

"Personal computing" verlangt die individuelle Nutzung personengebundener oder eigener Computer, die beruflich und zunehmend auch privat eingesetzt werden[8]. Der Computer wirk damit zum Qualifizierungsauftrag in Schule und Betrieb.

Durch das massenhafte Auftreten elektronisch gespeicherter Informationen ändert sich auch der Beruf des Bibliothekars[9]. Neue arbeitsinhalte, -bedingungen und -organisationen stellen neue Anforderungen an die Qualifikation der Mitarbeiter und die Struktur der Belegschaft. Derr Bedarf and Fachkräften in jenen Berufsgruppen, die für den Einsatz, den Betrieb und die Wartung der Technik verantwortlich sind, steigt sprunghaft an (in Abhängigkeit von der zunehmenden Ausbreitungsgeschwindigkeit dieser Technik). Auch die Kenntnisse, Fähighkeiten und Fertigkeiten der Bibliothekare ändern sich in dieser Richtung. Der Wert der Arbeit besteht immer mehr in der schnellstmöglichen Lieferung bestmöglicher Informationen. Die ethischen Prinzipien werden exakter gefasst und erweitert[10]:

- ständige Erweiterung und Aktualisierung der Kenntnisse
- engere Beziehungen mit den Vertretern des Berufes und aktive Teilnahme bei der Lösung gemeinsamer Probleme
- selbstlose Hilfe für jeden Nutzer ohne Ausnahme und Bereitwilligkeit zu einer möglichst vollkommenen Übermittlung des Wissensschatzes der Bibliotheken
- wohlgesinnte Diskretion: vertrauliche Behandlung der Fragen und der Unwissenheit des Nutzers
- gesellschaftliche Verbundenheit
- Einschätzung des gesellschaftlichen Bedarfs und Befriedigung der Bedürfnisse
- Schutz der angesammelten, in Schriften niedergelegten schätze des menschlichen Wissens
- Pflege der ästhetischen Erscheinung der Bibliothek im ganzen, geschmackvolle Ausgestaltung, Sicherung der notwendigen Bedingungen für die ungestörte Arbeit der Nutzer und unter dem Eindruck elektronisch gespeicherter Informationen
- Anpassungsfähigkeit, schnelle Auffassungsgabe, Logik, Exaktheit und Kontaktfreudigkeit, pädagogisches Talent, psychologisches Einfühlungsvermögen und Verantwortungsbewusstsein gegenüber den neuen Medien.

Zusätzliche Anforderungen an die Berufsethik erwachsen aus der Bildung con fachlichen Bibliotheksnetzen und Informationsnetzen.

Und der Nutzer? "It is necessary for libraries to help the user towards a non-mediated use of this new and for the moment still too complicated technology"[11]. Und die geeignetste Methode dazu ist die Online-Nutzerschulung. Um diese Form hat sich die IATUL sehr verdient gemacht[12].

Online-Nutzerschulung bedeutet ganz im Sinne dieser Session Nutzerschulung für

- die Nutzung des Online-Zugangs zu automatisierten Informationsrecherchesystemen sowie
- die Nutzung von Online-Katalogen.

Mit der Online-Nutzerschulung soll der Nutzer in die Lage versetzt werden, seinen Bedarf computergerecht anzumelden und die gespricherten Informationen optimal abzufordern. Die gegenüber der traditionellen Papierform anderen Arbeisweisen und Arbeitsergebnisse sind ihm an praktischen Beispielen zu erläutern und die Vorteile nachzuweisen. In diesem Zusammenhang sind auch ökonomische Probleme anzusprechen, die beim Einsatz des Computers von ganz anderer Grössenordnung sind als bei der einmaligen Erwerbung einer gedruckten Bibliographie oder bei der traditionellen Herstellung von Katalogkarten. Für die Online-Nutzerschulung im Sinne dieser Session lassen sich folgende Methoden anwenden:

1. Die Herstellung persönlicher Beziehungen zum Nutzer durch das Betriebspersonal der automatisierten Informationsrecherchesysteme und die Mitarbeiter von Bibliotheken und Informationseinrichtungen sowie die münliche Einführung in Form der Einzelaussprache
2. Die Durchführung mehrstündiger oder mehrtägiger Einführungskurse in einzelne automatisierte Informationsrecherchesysteme und Online-Kataloge
3. Die Herrausgabe schriftlicher Einführungen und Leitfäden zu einzelnen automatisierten Informationsrecherchesystemen und Online-Katalogen
4. Die Lehre von Inhalten zu "Online" durch die Fachwissenschaftler als Integration in die Lehre und Forschung, in die Leitungstätigkeit sowie in Lehrmaterialien.

Am Beispiel der Online-Nutzerschulung soll auch die zunehmende Rolle des Menschen im Gebrauch moderner Informations- und Kommunikationstechnologien dargestellt werden. Es zeichnen sich folgende Entwicklungstandenzen ab:

1. Der Online-Nutzerschulung kommt in allen Bibliothekstypen eine grosse Bedeutung zu. Sie wird zum Schlüssel der effektiven Nutzung von Bibliotheksbeständen, wenn diese nur über Online-Kataloge genutzt werden können, und von automatisierten Informationsrecherchesystemen, wenn diese in Anspruch genommen werden wollen.
2. Die Online-Nutzerschulung ist notwendig auch für nichtbibliographische Datenbasen sowie für viele Informationstechnologien der Zukunft zum Schlüssel effektiver Nutzung, wenn diese mit dem Online-Zugriff verbunden sind, z. B. die Systeme der künstlichen Intelligenz und neue optische Techologien, wie Text-Grafik-Systeme auf digitaler Basis, Systeme für analoge und digitale Nutzinformation einschliesslich der Kombination durch CD-ROM sowie holografische Speicher.
3. Der Nutzer wird durch den Personalcomputer am Arbeitsplatz und den Home-Computer zu Hause in der Zukunft in die Lage versetzt, mit automatisierten Informationssystemen direkt zu verkehren, ohne Bibliotheken oder Informationseinrichtungen aufsuchen zu müssen. Das bedeutet eine wesentliche Veränderung der Online-Nutzerschulung und ihre mögliche Verlagerung in Computer- oder Informatik-Zentren, gegebenenfalls auch in den rechnergestützten Unterricht der Schulen.

III. Zusammenfassung

Automatisierte Informationsrecherchesysteme und Online- Kataloge sind einige neue Informations- und Kommunikationstechnologien, die massenhaft in den Bibliotheken angewendet werden. Der Erfolg ihrer Nutzung hängt in starkem Masse vom Engagement und vom Können der Menschen ab.

- die die Vermittlerfunktion zwishen dem Nutzer und der elektronisch gespeicherten Information haben und
- die die elektronisch gespeicherten Informationen herstellen, pflegen und schützen.

Neue Informations- und Kommunikationstechnologien beeinflussen die Arbeit der Bibliotheken wesentlich, führen zu einer neuen Stellung der Bibliotheken in der Gesellschaft, zu neuen Aufgaben, zu neuer Arbeitsweise und zu neuen Strukturen und sicher auch zu einem neuen Bibliothekar.

Der Mensch bleibt mit seiner Arbeit, seinen Fähigkeiten und seinen Bedürfnissen im Mittelpunkt allen Geschehens in der wissenschaftlich-technischen Revolution[13].

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20-SCIE-4-E

HUMAN FACTORS AND ELECTRONICALLY STORED INFORMATION : THE PUBLISHER'S POINT OF VIEW

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Electronic Information

Electronic information is simply machine readable instead of eye readable. It requires a computer to process it and retrieval software to interact with it. Fifteen years ago electronic information meant data stored on a main frame computer and manipulated by rather unfriendly main frame software. isers needed a direct link to the remote computer and training in how to use the retrieval system. The search was conducted online, results were transmitted electronically, and the infomation delivered by post. users were changed according to the length and compexity of the search, not the value of the information.

Today computers are smaller, more powerful, faster and store more data. Retrieval software is easier to use, and there is a wide range of packages for various types of data and users. A large database does not have to be stored permanently on a remote computer. It can be delivered to the user on magnetic or optical media so he can do his own searches inhouse. Electronic products can now contain graphics as well as text. All this means that today's electronic products are more convenient, powerful and can be priced in terms of the information they contain and the value they offer.

Electronically stored information can therefore be many things to many people. It can be online database at Pergamon Orbit InfoLine, a Domesday videodisc at a local school, a floppy disk containing bibliographic references in the office, or a compact disk (CD-ROM) containing encyclopedias and directories in the library. Each contains different information, has different features and is delivered in a different qay depending on who will use it.

Human Factors

Human factors are those which have to do with how information is used by people. Human factors do not change the information, but they can affect whether the user likes and wants to use an information product. They can enhance or detract from the value of the information and determine whether a product is successful or not. Before looking at human factors in more detail, let us examine the publisher's role, the activities involved in creating an information product and the kinds of descisions and publisher makes.

The Publisher's Role

First the publisher must identify the information that people want and locate individuals and organizations which can provide it. Editorial panels and references ensure that the information is accurate, and internal editorial staff impose organization, editing and indexing. Designers and production staff create a visually appealing product, and marketing/distribution staff get the product to the users who wanted the infomation in the first place.

The publisher's role is now more complex than in the days when print was the only medium for distributing information. Now he can choose from print, online, microform, magnetic and optical media. The choice of medium and design of an electronic product depend not only on what it will *contain* but what it must *do*. This in turn depends on the requirements of users and therefore human factors.

Human factors and Electronic Information

As mentioned above, human factors have to do with how information is used by people; they determine whether users like and want to use an information product. For an elctronic information product, the human factors a publisher must take into consideration in its design are:

- ease of use
- accessibility
- presentation
- suitablitity for the user's work environment.

All of these contribute to the product's functionality.

Ease of Use

Electronic information is used on a computer and manipulated by retrieval software. The online retrieval systems of 15 years ago were difficult to use, requiring training, thick manuals and hours of practice. Today it is possible to deliver a database to a user on CD-ROM, which he can use on his micromputer, software which takes a half hour to learn to use.

In desiging an information product the publisher must assess the computer and information handling skills of all potential users. He may decide on easy-to-use features for a product aimed at scholars ot infrequent users. He may decide on more sphisticated retrieval if the product is for information specialists. He may decide to deliver the same information to two different markets and create two different products, each with software appropriate for that market. Or he may create one prod'.ct with two operating modes, one for experts and one for novices.

Access

The information in printed books is made accessible through its organization (table of contents) and indexing (author, subject, etc). Printed indexes must be selective and may be derived from only 3-10 index terms per page. Electronic products generally offer more extensive and intensive indexing. Products with full text search for example allow the user to search for every word phrase. Field specific search allows users to identify particular types of data, for example companies in a directory which manufacture a particular product and have an annual turnover in a particular range.

The publisher must therefore know in advance who will use the electronic product and why/how they will design it in order to build in the right access points. A well designed product will save the time of users and make them more productive by offering them rapid and varied access tailored to their particular needs.

Presentation
Visual appeal is important for all information products, but particularly so for electronic ones. Visual design and presentation contribute to the user's understanding of the information on screen, his options at any particular point and his subjective feelings towards the information delivered by the impersonal machine. Colour, shading, borders and graphics can distinguish areas of the screen, highlight activitites and options, and make an electronic product inviting to use.

The publisher must take great care not only in desiging the presentation, but in organizing and formatting the data which will appear on the screen. This may involve minor decisions like having shorter parapraphs, and more complex ones like building cross references and hierarchial relationships.

Suitability for the User's Environment
Online systems require telecommunications to connect the user to the remote computer. Online access therefore depends on the availability and reliability of good telecommunications. Disrtibutable media such as CD-ROM and optical disk allow a publisher to send an entire database to a remote geographical location where online access is not possible of practical. The user will still of course have to get his hands on a microcomputer and CD-ROM drive!

The publisher should make every effort to design information products so they are compatible with the user's existing equipment. He should avoid involving the user in unecessary expense, for example by requiring him to buy a high resolution colour monitor if neither colour nor graphics is essential.

Summary
It is essential that a publisher consider human factors when designing an electronic information product. Information is used by people and the way in which they want to use it will contribute to the product's design, its features and ultimate success.

5-SCIE-1-G

ADAPTATION IM BIBLIOTHEKSBAU – GILT DAS AUCH FÜR SPEZIALBIBLIOTHEKEN?

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Im direkten Anschluss an die Arbeitsergebnisse des Seminars der IFLA "Adaption of buildings to library use", das 1985 in Budapest und Békéscsaba stattfand,[1] möchte der Autor die Frage zu beantworten versuchen, ob die Möglichkeit der Adaption auch für Spezialbibliotheken gilt. Vor 25 Jahren hat kaum jemand von der Möglichkeit einer Adaption fremder Gebäude für bibliothekszwekke gesprochen, im Gegenteil, es galt fast als eine "Beschmutzung des eigenen Nestes" und als "Verkauf der Bibliothekswissenschaft". Eigene Erfahrungen haben viele Bibliotheken und Bibliotheken mittels Adaption zwei gleichberechtigte Formen sind. Diese these möchte der Autor – aus der Kenntnis zahlreicher Projekte und durch die Leitung des Bibliotheksbaus an der Bergakademie Freidberg – für Spezialbibliotheken zur Diskussion stellen.

Adaption als Begriff
"Adaption" kommt vom lateinischen Berb adapture = anpassen und bedeutet "Anpassung". *Adaption fremder Bausubstanz ist Umbau eines Gebäudes zum Zwecke einer neuen Nutzung.*[2] Im Bibliotheksbau kann man m. E. fünfverschiedene Formen der Adaption finden:

1. Umbau eines Gebäudes zum Zwecke der Nutzung als Bibliothek
Beispiele:
- SCHULE = Stadt- und Kreisbibliothek Neuruppin/DDR[3]
- BÜRGERHÄUSER = Stadt- und Kreisbibliothek Greifswald/-DDR[4]
- KIRCHE = Stadt- und Kreisbibliothek Güterbog/DDR[5]
- BURG = Nationalbibliothek Budapest/Ungarn[6]
- BAHNHOFSHOTEL = Bibliothek Storuman/Schweden[8]
- KAUFHAUS = Stadtbibliothek Aschaffenburg/BRD[9]
- TANKSTELLE = in mehreren Städten der USA[10]

2. Umbau eines Gebäudes zum Zwecke der Nutzung als Bibliothek mit Teilneubau (Anbau), weil die alte Bausubstanz nicht ausreicht
Beispiele:
- SCHULE = Bibliothek der Karl-Marx-Universität für wirtschaftswissenschaften Budapest/Ungarn[11]
- BÜRGERHÄUSER = Bibliothek der Ingenieurhochschule Zwickau/ DDR[12]

3. Umbau eines Gebäudes zum Zwecke der Nutzung durch mehrere Nutzer, darunter auch eine Bibliothek
- HOCHSCHULE = Hauptbibliothek der Technischen Hochschule Karl- Marx-Stadt/DDR[13]
- BAHNHOF= in mehreren Bahnhöfen der Bannmeile von Paris/ Frankreich[14]
- Palais = Jugendbibliothek Karlsruhe/BRD[15]

4. Bau eines Gebäudes zum Zwecke der Nutzung durch mehrere Nutzer, darunter auch eine Bibliothek
- MENSA = Bibliothek der Ingenieurhochschule Mittweida/DDR[16]
- WOHNGEBÄUDE = in mehreren Städten der DDR[17]
- KULTURHAUS = Bezirksbibliothek Göteborg/Schweden[18]
- EINKAUFSZENTRUM = Bibliothek in Dublin/Irland[19]

5. Bau eines Gebäudes zum Zwecke der Nutzung als Bibliothek, das eigentlich für einen anderen Zweck bestimmt war und zur Bibliothek umprojektiert wird
- MENSA = Bibliothek der Bergakademie Freiberg/DDR[20]

Die Beispiele zeigen, dass die Adaption im Bibliotheksbau eine grosse Vielfalt aufweist.

Adaption als gesellschaftliche Notwendigkeit
In der Vergangenheit stand beim Bau, bei der Einrichtung und bei der Ausstattung der Bibliotheken fast ausschliesslich der Neubau eines Gebäudes im Mittelpunkt der Argumentation und Diskussion. Die Rekonstruktion bestehender oder die Adaption bibliotheksfremder Gebäude wurden als Notmassnahmen und Ersatzlösungen betrachtet; sie wurden in der breiten Öffentlichkeit weder bei Architekten noch bei Bibliothekaren gern diskutiert. Adaption im Bibliotheksbau gab es natürlich zumindest versteckt über viele Jahrhunderte, sie blieb aber in theoretischen und praktischen Ansätzen stecken. adaption ist heute zumindest im sozialistischen Bau- und Bibliothekswesen eine gleichwertige Lösung neben dem Neubau. Aus den vorliegenden Untersuchungen sozialistischer Länder lassen sich die Gründe wie folgt zusammenfassend formulieren:[21]

1. Intensivierung auf allen Gebieten bedeutet volle Ausschöpfung der Möglichkeiten. Im Bauwesen werden höhere Effektivität von Investitionen, geringerer Anteil von Bauleistungen und kürzere Realisierungszeiten gefordert. Dies können auch Rekonstruktion und Adaption erfüllen.
2. Adaption ist eine ökonomische Lösung, weil zahlreiche Kosten bei der Nutzung von Gebäuden stark vermindert werden können: Energieversorgung, Heizung, Wasser, Abwasser und Verkehrsmittel sind zum grössten Teil vorhanden und können mitgenutzt werden.
3. Ende der 70er Jahre beginnt in mehreren sozialistischen Ländern eine Wandlung im Bauwesen: der Wohnungsbau nimmt qualitativ neue Züge an, Rekonstruktion und Modernisierung nehmen zu.
4. Gebäude, die sich für die Adaption eignen, sind der Bevölkerung bekannt und leicht erreichbar; sie liegen günstig inmitten von Wohn-, Einkaufs- oder Erholungsgebieten.
5. Für alte Bausubstanz, die im Rahmen des kulturellen Erbes erhalten werden soll (so bei Schlossbauten, Burgen, Palais, Kirchen, Bürgerhäusern), wird als neuer Verwendungszweck insbesondere der geistig-kulturelle Bereich angesprochen.

Auch ausserhalb der sozialistischen Länder werden Anstrengungen unternommen, um die Adaption von Bibliotheksgebäuden gleichrangig neben den Bibliotheksneubau zu stellen[22 23].

Der Autor möchte Alan Longworth zitieren, der zu den 7 Faktoren des gegenwärtigen und künftigen Bibliotheksbaus "the large number of building restored or adapted as libraries"[24] zählt.

Adaption und Bibliothekstyp
Wir wissen heute, welche Gebäude sich zu Umbauten für Bibliothekszwecke eignen. Der Autor beruft sich auf Beispiele aus den Niederlanden, wo sich zwischen 1980 und 1985 folgende Verteilung zeigt:[25]

Umbauten von Schulen	24 %
Umbauten von historischen Gebäuden	18 %
Umbauten von Geschäften	7 %
Umbauten von Büros	6 %

Umbauten von Kirchen	2 %
Umbauten von Fabriken	1 %
Umbauten von anderen öffentlichen Gebäuden	7 %

und dazu kommen

Umbauten (= Renovierungen und Rekonstruktionen) von Bibliotheken	35 %

Aber wir wissen nicht immer so konkret, welcher Bibliothekstyp solche Gebäude angeboten bekommt und in welchem Verhältnis diese Typen prozentual zueinander stehen. Offensichtlich stehen National-, Landes-, Bezirks-, Kreis- und Stadtbibliotheken im Vordergrund und erhalten bevorzugt adaptionsfähige Gebäude. Ihnen folgen Bibliotheken an Bildungseinrichtungen wie Universitäts-, Hochschul-, Fachschul- und Schulbibliotheken. Danach erst folgen Spezialbibliotheken.

Adaption und Spezialbibliothek

In jüngster Vergangenheit wurden international in beachtlichem Umfang vor allem kleine und mittelgrosse Bezirks-, Kreis- und Stadtbibliotheken sowie Fachbibliotheken in dezentralisierten Bibliothekssystemen grosser und territorial stark gegliederter Universitäten und Hochschulen als Adaptionen realisiert.[26] Die Bedeutung von Adaptionen für diese Bibliotheken wird in der Zukunft in erweitertem Umfang fortgesetzt. Für die Adaption bei Spezialbibliotheken[27] ergeben sich folgende Gedanken:

1. Spezialbibliotheken haben gegenüber vielen anderen Bibliothekstypen eine einfachere Organisation, überschaubarere Struktur, ein niedrigeres Alter und damit eine geringere Anzahl von Beständen sowie weniger Mitarbeiter. Besonders hervorzuheben ist, dass Spezialbibliotheken eine Informationsquellenvielfalt wie kein anderer Bibliothekstyp aufzeigen; das traditionelle Bibliotheksgut ist meistens nicht bestimmend, sondern neuere im Laufe der letzten Jahrezhnte massenhaft nachweisbare Informationsquellen bestimmen Erwerbung, Erschliessung, Aufbewahrung und Vermittlung: Patente, Standards, Forschungs- und Entwicklungsberichte, Hochschulschriften, Firmenschriften und Konferenzliteratur, aber auch Ergebnisse aus Datenbasen, elektronisch publizierte Arbeitsergebnisse und audiovisuelle Informationsträger...

   Durch diese Eigenschaften sind Spezialbibliotheken prädestiniert für Adaptionsmöglichkeiten. Insbesondere ergeben sich durch die geringer Grösse von Spezialbibliotheken Adaptionsangebote in grösserer Vielfalt, die von Universitäts- und Bezirksbibliotheken schon von der begrenzten Fläche her nicht realisiert werden können. Auch sind Teilneubauten (Anbauten) als Ergänzung zur Adaptionsfläche, die das Baugeschehen komplizieren äusserst selten. Mit zunehmender Grosse der Bibliothek und der Ausdehnung ihrer bibliothekarisch- technologischen Struktur sinkt dann allerdings die Adaptionseignung von Altbausubstanz, und der Investitionsaufwand steigt im Verhältnis zum Nutzen zu stark an.
2. Bei der Ermittlung der Adaptionseignung empfiehlt sich folgendes Vorgehen:[28]

- Grundsätzliche Bewertung des Adaptionsobjektes
- Einschätzung der Flächenbilanz
- Einschätzung der Qualität der Bausubstanz
- Einschätzung der funktionstechnologischen Eignung.

Wichtigste Kriterien für die Beurteilung der Adaptionseignung sind[29]:

- Gebäudestruiktur (Grösse des nutzbaren Anteils der Gebäudefläche, Gebäudegliederung und konstruktives System, Gebäude- und Geschossflächenerschliessung, natürliche Beleuchtung, Brandschutz, Raumeigenschaften)
  - Erhaltungszustand
  - Denkmalswert.

  Die Gebäudestruktur ist für die Adaption geeignet je weniger und je leichter zu verändern ist.

  Spezialbibliotheken gehören fast ausnahmslos zu einer Einrichtung und liegen auf deren Gelände. Dort gibt es zahlreiche Gebäude, die durch Neubauten frei und auf diese Weise der Bibliothek angeboten werden: Fabrikgebäude, Bürogebäude, Verwaltungsgebäude, Berufsschulen, Tankstellen, Hallen, historische Gebäude... Von Vorteil ist auch, dass die Leiter der Einrichtungen bei einer neuen Nutzung immer zuerst an eigene Bereiche denken, ehe sie Gebäude abgeben wollen.

  Die Bibliothekare sollten rechtzeitig gemeinsam mit den Architekten eine entsprechende Raumplanung vornehmen, um das horizontal und vertikale Wachstum der Bibliothek zumindest für die nahe Zukunft bestimmen zu können.[30]
3. Spezialbibliotheken zeichnen sich durch inhaltliche und räumliche Nähe zur Information und Dokumentation aus. In zunehmendem Masse wird dies nicht nur sichtbar in der Struktur und Organisation beider Einrichtungen, sondern auch in deren Arbeitsergebnissen. In Zukunft werden noch mehr als heute gemeinsame Bauten in Form von Wissenschaftlichen Informationszentren errichtet werden. Auch für sie gibt es vernünftige Lösungen in Altbausubstanzen, zumal viele organisatorische und technische Details gemeinsam genutzt werden können. *Beide* werden durch die elektronische Datenverarbeitung und andere Fortschritte der Technik ohnehin auch beim Bau und bei der Einrichtung weiter zusammenrücken.[31]
4. Spezialbibliotheken insbesondere mit historischen Sammlungen zu Naturwissenschaft, Technik und Medizin werden oft strukturell, organisatorisch und räumlich mit Sammlungen musealer Prägung verbunden sein. Ihre gemeinsame Unterbringung in älteren denkmalsgeschützten Gebäuden wird won vielen als wünschenswert erachtet. Diese Gebäude stellen aber ganz besondere Ansprüche an die Adaption, weil die Erhaltung vieler Teile – nicht nur das Äussere! – die Funktionstüchtigkeit einschränken kann.

Die Anpassung bibliotheksfremder Gebäude und Rüme für Spezialbibliotheken kann in der Zukunft die Hauptanwendungsform sein. Bibliothekare und Architekten haben sich auf diese Möglichkeit einzurichten.[32]

1 Der Autor ist im Besitz aller Preprints. Ein grosser Teil der Beiträge erschien in Fachzeitschriften, grösstenteils in englischer oder deutscher Sprache. Zusammenfassende Berichte sind zahlreich, am aussagekräftigsten ist der von Franz Koller in: ABI-Technik 5(1986)3. – S. 234 – 239.
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13-SER-2/SCIE-2-E

ADONIS: THE EXPERIENCE TO DATE

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ABSTRACT

Three major document delivery surveys indicate biomedicine as a suitable area for trials. Storage requirements based on samples of biomedical articles with their relatively high halftone content are translated into CD-ROM capacities. The trial is based on 218 biomedical journals from 10 publishers delivered on CD-ROM and will extend from 1987 to 1989. Articles will be retrieved from the discs and laser printed. A unique ADONIS identification number automatically logs usage via software embedded in the ADONIS workstation which is described briefly.

INTRODUCTION

The ADONIS Project is now testing the original idea that publishers can supply their journals in machine-readable form for document delivery centres to print out individual articles on demand and by reduced operating costs gain some income from 'interlibrary lending' without adding to the financial burden of the library community. The historical development since 1980, the problems and solutions have been described recently (Stern, 1986). The current trial runs until June 1989 and is based on the 1987 and 1988 volumes of a selected list of 218 biomedical journals from ten publishers.

OBJECTIVES

The main objectives of the project are to learn about the impact of such a service on end users (i.e. the customers of libraries ordering copies of articles) which will contribute to knowledge about information (re)packaging. It will explore aspects of the implementation of digital technology and will examine the economics of new ways of supplying individual articles. Key to the project is the reception by and influence on the work of libraries.

Of specific importance is the exploration of the possibility to share cost savings between libraries and publishers. In order to demonstrate such potential savings it is necessary to simulate actual operations on a sufficiently large scale to be credible whilst keeping costs as low as possible for what is essentially a research experiment. They need to have an experiment that addresses a particular problem worldwide must be capable of evaluation locally. For this reason copies of the ADONIS discs will be used not just in European countries, where approaches to document supply vary widely in terms of cost, size of market and legislation, but will be used also in other parts of the world.

3. THE COPYRIGHT PROBLEM AND INTERLIBRARY LENDING

During the last 20 years there has been a growing demand for the supply of individual articles and this has been accommodated by increased interlibrary lending and provision in many of the various national copyright legislations by 'fair use' clauses permitting the supply of a single article copy to a private researcher. This had the effect of providing for unlimited use of the journal to the detriment of the individual article reprint business of the publisher and erosion of full subscriptions.

In 1980 Elsevier undertook a major survey in collaboration with the British Library in which all requests received at Boston Spa over a two-week period were analysed. The results (CLarke, 1981) showed that biomedical articles less than three years old were the most frequently requested material. The continued popularity of young biomedical articles was confirmed in 1983 in a survey jointly undertaken by ADONIS and the British Library (British Library, 1983). A survey carried out in 1985 comparing the document request traffic of the British Library, CDST Paris, Chemical Abstracts, the National Library of Medicine and OCLC (ICSTI, 1987) again confirmed this trend although inevitably the rank order of journal titles differed somewhat from the two earlier surveys.

These are few useful data on the number of photocopies of articles distributed through the interlibrary lending system. King Research in a North American study found that 21.7% of all libraries engage in co-ordinated collection development, nearly two-thirds belong to interlibrary networks and 6.5 million serial interlibrary requests in 1981 were fulfilled with photocopies – an overall increase of 9% over 1976 (McDonald et al, 1982). The figures are probably higher now. Research in 1982 by the ADONIS group of publishers in 12 countries and using computer simulation suggested a greater figure of around 11 million interlibrary loans per year in North America with much the same total in Western Europe, with greatest demand for STM publications.

With improved computing and telecommunications, interlibrary lending services are becoming more efficient. Linking those document delivery services directly to the on-line searching of abstracting and indexing databases for direct document ordering has further increased the demand for photocopies of individual articles although most existing copyright legislation does not permit the storage of journals electronically without permission of the copyright owner.

4. THE CURRENT STATUS OF ADONIS

The early plans to use 30 cm optical discs and output stations costing perhaps $250,000 each proved too expensive. Two factors have changed sustantially the economics of the project. As a result of the tripartite agreement between the European, Japanese and U.S. Patent Offices to capture patent documents in machine-readable form, three scanning bureaux are being set up in Europe to handle between them more than 60 million pages. ADONIS scanning requirements, with its much lower volumes, could benefit as a result of the economy of scale whilst still having access to the system technology originally included in the ADONIS technical design specification.

The emergence of CD-ROM (Compact Disc – Read Only Memory) technology offers a smaller diameter disc than the original 30 cm discs

and provides cheaper duplication by pressing rather than rewriting by laser. Intended for applications where multiple copies are distributed which help to offset the high initial cost of the master disc, CD-ROM also has the advantage of much lower cost output equipment. A typical workstation will consist of a microcomputer, a disc player and a laser printer which with appropriate software will cost perhaps $25,000, which may fall ultimately to $10,000-$15,000 and which can be used for library applications other than document delivery.

In October 1985 the ADONIS Board agreed in principle to proceed with CD-ROM based experiemental service of biomedical journals if a scanning bureau could provide a service at an acceptable price and large document supply centres would participate in an experiment that simulated a fully operational service including payment of disc usage fees. These conditions were fulfilled and the project was formally approved in 1986.

The British Library, CDST in Paris, the Medical Library in Cologne and the Royal Academy of Sciences in Amsterdam agreed to take part in the experiment. In addition the CEC offered a grant of up to 200.000 ECU to help the experiment which is expected to cost more than $1 million. The ADONIS project therfore has been launched for an initial 2-2 1/2 years as an experimental service.

5. STORAGE NEEDS

Tests carried out this year on sample pages from biomedical journals show that some 20% of pages have halftone illustrations (which require higher storage capacities than text which can be compressed more by suppressing the white space on the printed page). Not all the halftones occupy full pages and when these are converted to full page equivalents, the result is 10% maximum.

The table below shows the storage required for text pages scanned at 300 x 300 dots per inch (horizontal and vertical axes) and 300 x 150 and for halftones scanned at 300 x 300. Scanning halftones at 300 x 150 requires almost identical storage (because the information is more densely packed on the page) but the quality is significantly poorer. Scanning text at 300 x 150 gives satisfactory quality as nearly all relevant information is seen by reading in a horizontal direction.

Because of the need to contain as many pages as possible on the optical discs it has been decided to scan the journal pages at 300 x 150 and to use 300 x 300 for halftones. Non-halftone graphics, line drawings, graphs, tables, etc. will be scanned as though they were normal text, i.e. 300 x 150. Discussions with medical researchers in different countries have confirmed the acceptability of the quality of the prints.

No. pages per year	*Aver. storage/page*	*Scan resolution*	*Storage required*	*No. of discs*
225,000 text	100 kb	300 x 300	25.59 gigab.	46.4
255,000 text	67 kb	300 x 150	17.1 gigab.	31.1
30,000 halftones	500 kb	300 x 300	15.0 gigab.	27.3

Discussion with the libraries indicated their wish not to have more than about one new CD-ROM each week, given that the discs would be loaded manually until jukeboxes of 100+ capacity are available. Taking the data above and using a 10% halftone content in a journals file translates on a one disc per week basis to a CD-ROM capacity of about 5000aprinted journal pages for a 550 mbyte disc. This in turn translates to an annual volume of 260,000 pages. A more detailed description of the technology has been published (Stern, 1987).

6. PRODUCTION

Each week the content of the journals will be indexed (bibliographic details, not subject indexing) at Excerpta Medica and each article will be identified by a unique ADONIS article number. The index information will be sent in machine-readable from (ASCII) to the Scanmedia bureau in the U.K. where the contents of the articles will be scanned.

The scanned contents together with the ASCII index information are then performatted and a weekly master disc is produced by Philips and Du Pont Optical Company (PDO) in Hannover from which copies are prepared and dispatched to the participating document output centres.

Each disc will carry the index information as well as the digital representation of the articles. On receipt of the discs, the centre can read the index information and store it in a cumulating ADONIS current awareness index to match incoming article requests.

The thoughput time from receipt of the printed journal to delivery of discs at the centres should be about 4 weeks (1 week indexing, 1 week scanning and 10 days disc production). This is such that discs will be at centres before the content of journals generates requests to the centres via current awareness or other sources of alerting. Complete calendar years of the journals will be included for 1987 and 1988. All editorial matter, letters, reviews, etc. are included but advertisements, contents pages and announcements are excluded. After thorough testing of a sample disc that passed through all stages in production, normal production of discs began in May and the small backlog of journals received since January 1987 were cleared at the rate of 2-3 discs per week.

7. ADONIS ARTICLE NUMBER

The ADONIS identification number consists of the ISSN, the last two digits of the year of (journal) publication and a consecutive number per item indexed beginning at '1' each year. Even with journals having tens of thousands of articles, etc. each year, the resulting unique and unambigous 16-digit number is less cumbersome and prone to error (e.g. when used for document ordering) than the U.S. National Information Standards Organization number which can be 38 characters long. The usefulness of the ADONIS number will be compared by the British Library in practical tests with the U.S. system and the International Standards Organization's 'BIBLID' system with financial assistance from the CEC. If the ADONIS number proves useful it should be possible to ask journal publishers to print it on each article, etc. and for abstracting services to include it so that it is available for document ordering.

8. ADONIS WORKSTATION

The British Library (with financial support from the CEC), specified the requirements and after competitive tender the European company MC2 of Grenoble, France were awarded the contract to supply the European participating centres. The design is basically that of the LaserData system (LaserView) using an IBM PC (XT or AT) or compatible computer, an optional high resolution (300 x 300 PEL) monitor capable of displaying a full journal page, proprietary cards (to handle decompression, interface with the disc drive and printer, etc.), an Hitachi CD-ROM drive and Ricoh Laser printer. In addition to the retrieval software there is included British Library developed software to keep a log (via the ADONIS identification number) of items printed. Retrieval is 0.5 sec average and the printer speed is typically 20 seconds for the first page and subsequently 8 pages per minute. This workstation was first demonstrated at the 10th Annual International Online Meeting in London (December 1986) and also can be seen on the British Library stand here at IFLA.

Typically requests received at a test centre for items would be sorted into ADONIS or non-ADONIS journals and the latter processed conventionally. For the ADONIS requests, these are sorted into disc order by using the cumulated ADONIS (ASCII-based) index and are retrieved and printed after loading each appropriate disc.

9. TEST ENVIRONMENT

The services that are participating now in the project are: *Europe* British Library, Boston Spa; CDST, Paris; Instituto de Información y Documentación en Ciencia y Tecnologia (ICYT), Madrid; Medical Library, Cologne; Royal Academy of Sciences, Amsterdam; Universitätsbibliothek Hanover und Technische Informationsbibliothek (TIB), Hannover. *Japan* Kinokuniya Company Ltd., Tokyo. *Mexico* Facultad de Medicina, Universidad Autonoma de Nuevo Leon Monterrey, N.L. *U.S.A.* Information on Demand, Berkeley, California; University Microfilms International, Ann Arbor, Michigan. In addition, discussions are taking place for possible participation by centres in Australia and Sweden.

Every three months the collected statistics of which articles have been copied (as recorded by the software on the basis of the ADONIS article identifier) will be sent on floppy disc to the British Library which will present a consolidated report to ADONIS showing details of what was copied, when, the age of the articles, the type of requestor (academic, governmental, industrial) and the country of origin of the request. These statistics will be the basis of the most comprehensive document delivery survey ever undertaken and will provide both librarians and publishers a deep insight into what material is being actually read.

10. FUTURE DEVELOPMENTS

Work is continuing on the development of hybrid systems. This may involve the use of ASCII-based photocomposition tapes used for typesetting which contain codes for software generation of particular typefaces and can be used for the textual part of articles. If only the halftones are stored in digital facsimile form, and are compressed at much higher ratios than the 12-15:1 used currently, the halftones can be positioned at the correct page position by coordinates and the effective capacity of discs increased considerably beyond the 5000

pages limit. These developments combined with jukebox developments may make ADONIS experiment transformable into a fully operational and comprehensive service with financial benefits to all parties.

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ADONIS : THE VIEW OF THE USERS

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ABSTRACT

The ADONIS concept of storing journals on optical disk has a long history and has moved from the idea of using a costly 12 inch disks system to a trial on compact disc. Reuests for copies from 218 high use titles in the field of biomedicine will be supplied from the discs by a number of document delivery centre, including BLDSC, which are participating in the 2 year trial. The paper considers the development of the document delivery workstation by BLDSC and the advantages and disadvantages of ADONIS in its present form to the user.

ADONIS – The view of the users

Background

Serial publishers have for many years held the belief that the operation of the 'fair use' clause by organizations supplying documents, in particular those supplying photcopies from journals, has lead to a prograssive diminution of subscriptions to their journals. Although there is no direct proof of such a correlation the consortium of publishers known as ADONIS began in the late 1970's to look at the possibility of providing document delivery centres with journals in machine-readable form, in order that the individual articles could be measured automatically. The centres would then be requires to make a payment of a subscription fee to the publishers plus a 'use' or 'copyright' fee.

The British Library Document Supply centre (BLDSC), collaborated with Elsevier Science Publishers in 1980 and again in 1983 to monitor the use of journal titles at BLDSC (then the British Library Lending Division). Both studies indicated that a small number of titles satisfied a relatively high propotion of demand, that around 50% of demand was for issues less tha 3 1/2 years old and that titles in the field of biomedicine for over 60% of demand.

The early planning by ADONIS was based on the use of 12-inch digital optical disks to store several thousand journals which both generate the highest use and provide the widest coverage for the market. During the period from 1980 to 1983 muck work was carried out to determine the feasibility of such a project including several independent studies by consultants of the likely financial viability. There were several problems at this stage – for the ADONIS publishers the high cost of both scanning the documents and producing and copying the disks and to the document delivery centres the cost of the equipemtn neede to access the disks. Finally Logica proved that servicing requests from such a system would show no advantage in terms of costs to BLDSC and therefore by implication would be unlikely to do so far smaller organization handling fewer requests.

At this stage the ADONIS concept went into hibernation until 1985 when lower computing costs and the availability of different optical storage media, in the form of compact discs (CD-ROM), meant that a compromise could be reached which might allow the publishers and document delivery centre to conduct a trial.

The Present

In July 1986 the ADONIS publishers decided to go ahead with a trial, supported by the Commission of the European Communitites, to supply 218 high-use biomedical titles on CD-ROM. For the publishers this was a reasonable compromise in that the investment costs were much reduced in comparison with the larger system considered in the early 1980's. By courtesy of the plans to digitise European patent information, scanning bureaux were becoming available and the cost of producing a CD-ROM is insignificant when compared with the estimates for the 12" disks.

One of the problems for the document delivery centres is that the limited storage offered by compact disc means only a small subset of the titles which they subscribe to would be covered by the ADONIS system. As such it will be a spin-off from their main operations with the associated problems that such an arrangement involves. Also, in order that a sufficient number of titles are included to make the trial worthwhile and the currency of the disc is maintained the frequency with which discs will be supplied to the centres participating in any such trail would be such that a jukebox would be an urgent requirement.

The Trial

The contents of 218 journals, published from January 1987 onwards, and selected from the collections of the consortium members and other publishers wishing to participate less fully in the trial will be published on CD-ROM. They will be indexed by Excerta Medica to the level of providing a full bibliographic reference for each article and the contents of each journal will then be scanned by London based Scanmedia bureau. In order to maximise storage capacity of the discs text will be scanned at 300 x 150 dots per inch and halftones at 300 x 300 dots per inch. More mention of the problems associated with this is made later. the ASCII index and the facsimile images of the pages are then processed by Philips and Du Pont Optical (PDO) in Hanover and discs produced for distribution.

Some mention should be made of the Centres which decided to participate in the 2 year trial, by servicing requests for selected journals using the CD-ROM's supplied by ADONIS, and their reasoning. The original four centres which were to participate were BLDSC in the UK, Centre de Documentation Scientifique et Technologique (CDST) in Paris, the Central Medical Library in Cologne (in collaboration with Universitatsbibliothek und Technische Informationsbibliothek – TIB in Hanover) and the Royal Academy of Sciences in Amsterdam. These were joined in late 1986 by the Institute of Science and Technology (ICYT) in Madrid. Since that time the ADONIS consortium have negotiated with other insitutions including the Faculty of Medicine, Monterrey (Mexico), Information on Demand in California, Universtiy Microfilms International in Michigan and the Karolinska Institute of Medicine in Stockholm and the National Library of Australia for the sale of the discs. The centre will obviously all have their own reasons for participating in the trial – but it may be interesting to highlight a couple. The Faculty of Medicine in Monterray has a realtively common problem in that it cannot acquire journal issues quickly enough to satisfy demand for them. The Karolinska Institute in Sweden has the problem that the time taken to process requests for photocopies from clinicians is longer that the average length of hospital stay for a patient. The Document Supply Centre has from beginning participated in talks with ADONIS and whilst it can see distinct disadvantages in the trial, as the largest document supplier in the world it has a well developed plan for experimenting with electronic document storage and delivery and ADONIS forms a part of that scheme. Also as the Centre has a very prominent leadership role in document delivery it is important that it should be involved with and participate in the moulding of any such service.

In order to participate fully the British Library Document Supply Centre put its own proposal to the Commission of the European Communities, to develop a workstation which would access the ADONIS CD-ROMS' and was granted 25% funding in late 1986. Development of the workstation has been contracted to MC2 in France.

The hardware comprises a microcomputer, CD-ROM drive, high resolution screen and laser printer and has associated retrieval software. It costs in the region of £20,000 of which around £5000 is for the screen. the workstation facilitates a number of different processes:

i) as each new ADONIS CD-ROM arrives the bibliographic index is stripped from the disc, download onto the system disc and cumulated in order that the index is up-to-date and searchable in one operation,

ii) the system has retrieval software based in the Unify database package, which allows searching of the bibliographic index and location of the required article. Once the appropriate item is identified the system will allow the display of the article page by page on the screen or printing.

iii) the system records use by each centre at the artcile level, for quartely consolidation for the centres themselves and ADONIS.

In developing the system it was important to remember the differing nature of the centres which would be using it, ie those with a reference function such as the Royal Academy in Amsterdam where a high resolution screen would be important and the Medical Library in Cologne where the 218 journals selected account for a considerable proportion of demand and as such the system must be able to operate as a fast document delivery machine. Also the majority of users would not be particulary computer literate and as such the software must be very user friendly. For BLDSC it as also important that the system be able to interface with document delivery systems including Group IV facsimile transmission and delivery by satellite (APOLLO type system).

Many of the aims have been achieved. The system allows simple searching of the bibliographic detailes – ADONIS number, ISSN, Journal title, article title, authors, years of publicaiton, volume, issue, issue and page range, using a pre-formatted screen. Any combination of elements and substrings (in the case of the title fields) can be used, although as with all retrieval systems the more specific the terms the faster the search. The wide range of possibilitesof combinations allowable will in fact mean that it will be easier to deal with requests with few details, although users are not to be encouraged to test this! After searching, the system will display the titles of the articles which meet the search strategy and if more than one allow the operator to select the appropriate title and display the full bibliographic reference. This should enable the operator to decide whether the article retrieved matches the users request and either opt to display or print the article or move back to the list of article titles and select another.

The system has not as yet been evaluated by the other Centres but the staff from the operational areas at BLDSC were favorably impressed with only a modifcation to enable searching in upper case rather than a mixture of upper and lower case being necessary. The system will be located within the storage areas immediately adjacent to the hard copy versions of the ADONIS titles. The system will be operated in batch mode in that searching will be conducted once a day to be followed by printing of the required articles, although at any time the system can be interrupted to process an urgent request.

Advantages and Disadvantages

For most of the centres participating in the trial the 218 titles selected forms only a small part of their collection and hence requests. As such the processing of requests in the ADONIS trail forms a spin-off from the regular service offered with all the inherent problems. One of the greatest problems for BLDSC is to filter off requests for ADONIS titles from the 12,000 requests arriving at the Centre each day.

As yet there is not a CD-ROM jukebox available which will handle a substantial number of disc and therefore initially the operator will need to load the discs manually. With a projected delivery of one disc per week this could very quickly become tedious and also test the durability of the discs. It also means that the equipment has to be attended when in print mode.

During the trial there is no financial advantage to the participating centres, in fact the converse, in that they are having to maintain their subscription to the hard copy, subscribe to the CD-ROM's, sometime pay a usage fee and purchase the workstation.

It is within BLDCS's future plans, and within the CEC proposal to interface the ADONIS workstation with electronic document delivery systems such as Group IV facsimile transmission being used experimentally in the UK, and satellite delivery systems such as APOLLO – to be used for delivery to Western Europe. When this has been accomplished it will mean that there is no need to prduce a copy of the article, the image will be transmitted directly down the line. However differing resolutions being used by such systems, particularly the mixed resolution chosen by ADONIS, may make this a challenging problem.

On the brighter side the system will offer variety of working patterns to staff involved with locating documents in large delivery systems and make the indentification of difficult requests easier. It is to be seen whether the novelty will wear off! The user will benefit in recieving a high quality copy, which will be particularly important when the article contains half-tones or plates etc, at no extra cost.

In summary BLDSC views the trial as an experiment which has required substantial financial investment both in terms of equipment and staff time. It is evident that compact disc is not the ideal medium for large scale full text storage because of its limited capacity.

It will be interesting to see how the publishers decide to proceed after the trial – a different storage medium, subject tailored disc? At the moment the threat to document delivery systems from the scale of the discs to their users is small, for two reasons. Few users have a close enough subscription profile to make it worth their while to purchase the discs and the volume of requests concerned is a small proportion of the centres total business.

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HUMAN ASPECTS OF ELECTRONICALLY STORED INFORMATION :

POINT OF VIEW OF A DIRECTOR OF LIBRARY STAFF.

by

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"HUMAN ASPECTS OF ELECTRONICALLY STORED INFORMATION": Point of view of a Director of Library staff: Bibliotheksrat Dr. Dieter Schmidmaier / GDR - Member of the Standing Committee of the Science and Technology Libraries Section and 2nd Vice President of IATUL

English version

The scientific-technological revolution brings progressive change to the working process. Its scale of action expands to a hitherto unknown degree. There is no field of activities conceivable which is not most decisively affected by scientific-technological revolution. The functions which can be transferred to technological equipment include manual as well as formalizable intellectual work. The computer becomes an individual intellectual aid to man.

Massive application of up-to-date information and communication technology will bring basic change to work in libraries, information centres and information retrieval systems. However, as in all fields where modern technologies are applied, the predominant role of man in libraries is preserved:

1. Man is and remains the creator of all technology.
2. Objective and purpose of all technology is related to man.
3. Man is and remains the driving force of every technological process.

Development trends of information and communication technologies show the formation - under the guidance of the librarian - of a system of closely interrelated individual techniques which facilitate and accelerate access to scientific information to a hitherto unknown degree. The idea that the development of information and communication technology is the core of scientific-technological revolution becomes more and more generally accepted. In the nineties, revolutionary change in the field of productive forces will mainly be accomplished by introduction of such technology, which in turn will have a very marked impact on social life.

The increased application of those technologies creates a new understanding of the access to information and of information requirements. Especially high responsibility rests upon the mediator between stored information and users, i. e. the librarians, and this responsibility is further increased by the introduction of new generations of computers.

One problem is the examination of human aspects of electronically stored information. In the field of libraries, autometed information retrieval systems are concerned as well as online catalogues. Computer application in libraries began in the fifties in the field of administration, was expanded to loan later on and, finally, to cataloguing. Also in the fifties, computer application for information and documentation needs, especially for publication of abstract journals, was introduced. In the early sixties, a new quality was reached with selective dissemination of information. In the early seventies, terminals with access to databases were introduced in libraries of the USA; Europe followed in the second half of the seventies. Since the beginning of the eighties, the massive application of terminals with access to databases of almost all fields of science is worldwide library standard.

Fortunately, the international non-gouvernmental organizations IFLA, IATUL and FID have recently very intensely concentrated their conferences and publications upon the impact of modern

technology on position, purpose and operation of libraries. I only want to remind of

- 1983 IFLA Conference at Munich, which dealt with the general topic of "Libraries in a technological world" and included contributions on this problem from many colleagues,[1]
- 1986 IFLA Conference at Tokyo, which dealt with the general topic of "New horizons of librarianship towards the 21st century" and included a colloquium on "The influence of information technologies on libraries and librarianship"[2] which aroused much attention
- the 1981, 1983 and 1985 IATUL Conferences whose general topics "Libraries and the communication process", "The future of serials" and "The future of information resources for science and technology and the role of libraries" were very much related to our problems.[3]

I participated in most of those conferences and, when preparing this contribution, re-read its published results with great interest. Furthermore, I studied various analytical surveys and reports which evaluated an impressive amount of individual documents[4]. Finally, in my position as director of a library staff, as a member of an IFLA Standing Committee and 2nd Vice President of IATUL, I reconsidered personal experience. I think there are three basic principles concerning our topic which I am going to put forward in form of theses:

Thesis 1

Modern information and communication technologies become immanent parts of a library's internal and external work, thereby expanding its purpose and essentially changing its way of functioning and structures.

Thesis 2

The application of technologies leading to electronically stored information requires consistent guidance of the process by experienced directors and continuous cooperation with informatics, computer and data processing specialists.

Thesis 3

The application of technologies connected with electronically

stored information requires high education standards among the staff. Corresponding to the needs of society, educationalists must do good ground work here - for co-workers as well as for users.

Many colleagues from various countries have spoken out on the first thesis. Therefore, I am going to restrict myself to the second and third thesis only.

I. Required abilities of the director

Electronically stored information is gratefully accepted by library users. The high requirements of material, technology, organisation and personnel necessitate a strict direction of the process by experienced directors. Some elements of this directing activites are listed below:

1. The director must be able and ready to think and to act with due regard to prognoses, i. e. he must be open to everything new and paragon in questions of the application of modern technology. Thus, he must take a position in front of the process, and not beside or even behind it. He must improve his own qualification, be prepared to any innovation and react in right time. Moreover, he must integrate the new into the old existing structures.
2. The director must solve the problems of staff which are connected to the application of modern technology, create the material and physical preconditions and always keep a sense for an optimum proportion between cost and effect.
3. The director must see the massive application of automated information retrieval systems and online catalogues leads to more cooperation and coordination, thereby creating new guidance problems, especially where inter-facility tasks have to be fulfilled. Everybody knows automated information retrieval systems and online catalogues cannot be managed by one institution on its own anymore. The establishment of various forms of cooperation (libraries as parts of computer centres; local library systems; special library networks and

other national and, especially, international forms) puts some challenge to the director's ability. Success and failure of the innovation process depend primarily on the director's position towards the new technologies.

4. The efficiency of automated information retrieval systems and online catalogues depends on the solution of large-scale science management problems. This concentrates mainly upon medical, psychological, sociological and organizational processes at the work place for co-workers and users, orientated primarily on requirements to working subjects and working conditions due to prolonged working time at display screens (e. g., flexibility, optimum illumination, elimination of blinding phenomena, amount of radiation dissipated by the display screen, optimum break scheme). The importance of this grows with the degree of integration increasing and automation approaching the individual workplaces. Apart from restructuring of workplaces, science management measures lead to standardization of working processes, increase of percentage of formalizable work and reduction of routine work.

5. The director is responsible for public relations as well, because "You can't make something out of nothing". Automated information retrieval systems and online catalogues have to be propagated. Their introduction represents a major change from "paper" bibliographies and catalogues. Furthermore, the director should always fight for a presentation favourable to the user and easy utilization of automated information retrieval systems and online catalogues. He must commit himself to a new setting of cataloguing rules to achieve optimum utilization of the possibilities of electronic storing.

II. The required education level

I want to emphasize here that a strict separation of staff and user education is not always feasible due to the dialectic relationship between them mediated by the computer. Improvement of information retrieval quality depends on[5]

- the qualification of the information specialists
- strengthening of decentralized consultation
- user education,

and a more frequent library utilization depends on[6]

- the information retrieval language used,
- a small time lag between the publication of a source and inclusion in the retrieval system,
- inclusion of all categories of information sources, especially grey literature.

The director seeks f a c i l i t a t i o n of access, compared with the "paper" method. Librarians claim traditional catalogues to be easy and online catalogues to be difficult in access, but this is not true.[7] Card catalogues and catalogues in bookform have their own drawbacks and problems:

- the larger they are the more unwieldy they are
- access is limited by physical form
- follow-up is rather complicated
- the user knows neither their structures nor their extensive and difficult rules.

Experience has shown online catalogues to be gladly accepted by users. Online catalogues improve the library's image. With online catalogues, access to the bookstock is easier.

However, exact phrasing of wishes requires a good command of one's native language, ability for logical thinking and putting forward of exact concepts and command of the foreign language(s) used in automated information retrieval systems and information sources.

The demand for a higher education level of both librarian and user to satisfy the higher standards of access to scientific information and, correspondingly, for new professional ethics runs like a thread through all contributions published during the last 10 years.

"Personal computing" demands individual application of personally available or personally-owned computers for professional and, increasingly, for private purposes[8]. Thus, the computer becomes a subject in the qualification process at school and at work.

The massive utilization of electronically stored information alters the profession of the librarian[9]. New working subjects, working conditions and methods of organization arise new requirements of staff qualification and structure. Rapidly, more specialists are needed for application, operation and maintenance of technical equipment, in dependence on the increasing speed of propagation of new technology. Knowledge, abilities and skills of librarians change into this direction as well. High-quality work is increasingly termed supply of the best information available in shortest possible time. Ethical principles are set more exactly and extended[10]:

- continuous stepping-up and actualization of knowledge
- closer relations between library staff members and active participation in the solution of common problems
- selfless assistance to every user without any exception and willingness to a possibly extensive transfer of the information stored in the library collection
- well-disposed discretion; confidential treatment of the users' questions and possible ignorance
- sociability
- assessment of social requirements and their satisfaction
- protection of the treasures of human knowledge stored in the library's collection
- cultivation of the aesthetic appearance of the library as a whole, tasteful room design, guarantee of the necessary conditions for the undisturbed work of users

and, to meet the new tasks connected with electronically store information

- adaptability, intelligence, logics, exactness, communicati-

vity, educational abilities, psychological empathy and responsibility in the field of new media.

Additional standards of professional ethics result from the formation of specialized library and information systems.

And the user? "It is necessary for libraries to help the user towards an non-mediated use of this new and for the moment still too complicated technology".[11] The method best suited for this is online user education. IATUL has rendered great service to its propagation.[12]

Quite in agreement with the theme of this session, online user education means user education for

- utilization of the online access of automated information retrieval systems and
- utilization of online catalogues.

By online user education the user shall be enabled to state his requirements in a manner ready for the computer and to receive an optimum selection of the stored information. The methods and results differing from traditional "paper" form must be explained and their benefits must be proven to the user. In this context, economic problems have to be taken into account, which are on another scale in case of computerization than in the cases of single acquisition of a printed bibliography or traditional printing of catalogue cards. The following methods are applicable for online user education in the sense of this session:

1. Establishment of a one-to-one relationship between the user and the staff of automated information retrieval systems, libraries and information centres and individual verbal introduction.
2. Training courses for several hours or days with instructions in the use of individual automated information retrieval systems.
3. Publication of written instructions and guidelines concerning individual automated information retrieval systems and

online catalogues.

4. Teaching of "online age" subjects by experts, to achieve integration into educational, research and administrative activities and educational documents.

During online user education, the increasing role of man in the application of up-to-date information and communication technology is to be shown. The following trends can be noticed:

1. Online user education plays a major role in all types of library. It is the key to efficient utilization of the library collection if it can be utilized with the help of online catalogues only and for automated information retrieval systems if their introduction is planned.
2. Online user education is necessary for non-bibliographic databases as well and is the key to efficient application of many future information techniques if those have online access, e. g. systems of artificial intelligence and new optical techniques such as digital text-graphics-systems, analogue and digital use information systems including CD-ROM combination, and holographic memories.
3. Personal computers at work and home computers at home will enable the future user directly, i. e. without visiting libraries or information centres, to address an automated information retrieval system. This means an essential change to online user education and implies its possible transfer to computer or information centres, or even to lessons on computer utilization at school.

III. Conclusions

Automated information retrieval systems and online catalogues are among the new information and communication technologies massively applied at libraries, whose success depends primarily on the ability and the engagement of people who

- mediate between users and electronically stored information and who

- produce, maintain and preserve electronically stored informations.

New information and communication technologies substantially influence on library operation and on the libraries' position in society. They lead to new tasks, new methods and new structures, and certainly to a new type of librarian.

Man with his work, his abilities and his needs remains the centre of all processes of the scientific-technological revolution.[13]

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IFLA GENERAL CONFERENCE, BRIGHTON

Division: SPECIAL LIBRARIES

Section: SCIENCE AND TECHNOLOGY LIBRARIES

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ADAPTATION IN LIBRARY CONSTRUCTION : Does this also apply to special libraries?

by

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Adaption in Library Construction - Does this also apply to special libraries?

On the basis of the working results of the IFLA seminar 'Adaption of buildings to library use', held in Budapest and Békéscsaba in 1985[1], the author intends to try to answer the question whether the possibility of adaption also applies to special libraries. 25 years ago hardly anyone spoke of the possibility of adaption of any building to library use. On the contrary, this was almost considered as 'befouling one's own nest' and as 'sale of the library science'. By their own experience many librarians were taught that new buildings for libraries and and libraries by adaption are two equal variants.
Being aware of numerous projects and having administered the library construction at the Mining Academy of Freiberg the author would like to put this thesis up for discussion with regard to special libraries.

Concept of Adaption

'Adaption is derived from the Latin verb adaptare = adapt and means making suitable for a new use. The adaption of any building to a new use means restructuring of a building.[2] In my opinion five different variants of adaption can be found in library construction:

1. Reconstruction of a building for the purpose of library use

Examples:

- SCHOOL - Public Library of Neuruppin/GDR[3]
- PATRICIAN HOUSES - Public Library of Greifswald/GDR[4]
- CHURCH - Public Library of Güterbog/GDR[5]
- CASTLE - National Library of Budapest/Hungary[6]
- STATION HOTEL - Library of Storuman/Sweden[8]
- DEPARTMENT STORE - Public Library of Aschaffenburg/FRG[9]
- FILLING STATION - in several towns of the USA[10]

2. Restructuring of buildings for the purpose of library use including partially new constructions (side-building), because the condition of the existing building is insufficient

Examples:

. SCHOOL - Library of Karl Marx University of Economics in Budapest/Hungary[11]
. PATRICIAN HOUSES - Library of Engineering College of Zwickau/GDR [12]

3. Restructuring of buildings to be used by several users, among them also as library

. COLLEGE - Main library of College of Technology of Karl-Marx-Stadt
. RAILWAY STATION - in several railway stations within the precints of Paris/France [14]
. PALACE - Juvenile library of Karlsruhe/FRG [15]

4. Construction of buildings to be used by several users, among them also a library

. DINING HALL - Library of Engineering College of Mittweida/GDR [16]
. DWELLING HOUSES - in several towns of the GDR [17]
. CULTURAL CENTER - District library of Göteborg/Sweden [18]
. SHOPPING CENTER - Library in Dublin/Ireland [19]

5. Construction of buildings for the purpose of library use. However, originally the building was intended to serve another purpose, later the project was redesigned.

. DINING HALL - Library of the Mining Academy of Freiberg/GDR[20]

These examples illustrate the varieties of adaption in library construction.

Adaption as Social Necessity

In the past the new construction of a building was almost exclusively given priority when the construction, furnishing and decoration of libraries were discussed.

The restructuring of existing buildings or the adaption of non-library buildings were considered as alternative or emergency measures. In the public they were reluctantly discussed by architects as well as by librarians. Adaption in library construction has certainly existed at least latently for many centuries, however, it got stuck at the very beginning. Today, besides newly built libraries adaption is an equivalent alternative at least in socialist architecture and librarianship. The causes derived from investigations in socialist countries can be summarized as follows:[21]

1. Intensification in all fields involves complete exhaustion of all possibilities. In architecture higher effectivity of investments, a lower proportion of building work and shorter periods of realization are required. This can also be a chieved by restructuring and adaption.

2. Adaption is an economic way because various costs can be largely reduced in using existing buildings: Power supply, heating system, water supply, sewage disposal and means of communication are mostly available and can be jointly used.

3. In the late 70s in several socialist countries a change began in architecture: Housing construction assumes qualitatively new features. Restructuring and modernization are increasingly applied.

4. Buildings suitable for adaption are well-known to the population and within easy reach. Besides they are situated in the midst of dwelling, shopping and recreation areas.

5. For old buildings, which have to be preserved within the programme of the cultivation of the cultural heritage (such as castles, fortresses, palaces, churches, patrician houses) especially the intellectual and cultural sphere as new field of application is taken into consideration.

Also in non-socialist countries great efforts are made to put the adaption of library buildings on the same level as the new construction of libraries.[22,23]

The author wants to quote Alan Longworth , who includes 'the large number of building restored or adapted as libraries'[24] in the 7 factors of present and future library construction.[24]

Adaption and Type of Library

Today we know which buildings are suitable for restructuring for library purposes. The author refers to examples from the Netherlands, where the following proportions for the period of 1980 - 1985 were shown:[25]

Restructuring of schools	24 %
Restructuring of historical buildings	18 %
Restructuring of shops	7 %
Restructuring of offices	6 %
Restructuring of churches	2 %
Restructuring of factories	1 %
Restructuring of other public buildings including	7 %
Restructuring (= renovation and modernization) of libraries	35 %

However, we do not always know definitely to which type of library such buildings are assigned and which proportions these types of library hold to each other. Obviously, national, regional, district and public libraries have the priority and are preferrable adaptable buildings. They are followed by libraries at institutions of education, such as universities, colleges, technical schools and schools. Only then special libraries follow.

Adaption and Special Library

Recently mainly small and medium-sized district and public libraries in decentralized library systems of large and regional universities and colleges have been realized as adaptions to a large extent on an international scale.[26]

The importance of adaptions for these libraries will continue to increase in future. The following conclusions can be derived for the adaption referring to special libraries[27]:

1. As compared to many other types of library special libraries have a much simpler organisation, a clear structure, a lower age and thus a smaller amount of stock as well as less staff.
   It should be especially emphasized that special libraries offer a larger variety of information sources than other types of libraries. Mostly the traditional library materials do not have a decisive influence, but newer, abundant information sources available during the last decades determine acquisition, cataloguing, storing and supply: patents, standards, research and development bulletins, university publications, business documents and conference literature, but also results from data bases, electronically published working results and audio-visual information carriers...
   Due to these characteristics special libraries are destined for adaption. Especially due to the smaller size of special libraries a larger variety of adaptions is offered, which cannot be realized by university or district libraries because of their limited space. Also partially new buildings (side-buildings) which supplement the adaption space, complicate the building measures and are extremely seldom. However, as the size of the library increases and its library-technological structure expands, the tendency of adapting old buildings decreases and the capital expenditure highly increases in relation to the use.

2. The following procedure in determining the adaption suitability is recommended:[28]
   . Fundamental evaluation of the building to be adapted
   . Surface calculation
   . Assessment of the quality of the building
   . Assessment of the technological suitability

The most important criteria for the evaluation of the suitability for adaption are the following[29]:

- Building structure (useful proportion of building surface, arrangement of building and constructional system, building and floor development, natural lighting, fire protection, room characteristics)
- State of preservation
- Value of historical monument.

The building structure is more suitable for adaption the less and the easier it is to change.
Special libraries almost exclusively belong to an institution and are situated on its territory. There one can find numerous buildings which are freely disposable due to the construction of new buildings and are therefore offered to the library: buildings of factories, office buildings, administration buildings, vocational schools, filling stations, halls, historical buildings...
It is also of advantage that the directors of such institutions always first consider the needs of their own institution when the new use of the existing building is decided, before they are inclined to leave it to others.
In agreement with the architects the librarians should prepare the appropriate space planning in time in order to be able to determine the horizontal and vertical expansion of the library at least for the near future.[30]

3. Special libraries are noted for their closeness to information and documentation as to space and content.
To an increasing extent this becomes evident not only in the structure and organisation of both institutions but also by their working results. In future more joint buildings will be constructed as scientific information centres than today. There are also reasonable applications to old buildings since many organisational and technical details can be jointly used. Anyway, both facilities will move up closer in construction and furnishing due to electronic data processing and other progress in technology.[31]

4. Special libraries including historical collections on natural science, technology and medicine are often combined structurally, organisationally and spatially with collections of historical background. Their joint accommodation in older buildings under preservation order is regarded as desirable by many people.
However, these buildings make heavy demands on adaption, because the preservation of many parts - not only the appearance! - can restrict the working order.
The adaption of non-library buildings and rooms for special libraries might be the main form of application in the future. Librarians and architects should focus their attention on this variant.[32]

[1] The author has all preprints in his possession. A large proportion of the papers was published in scientific journals, mostly in English or German. There are numerous summarizing reports, that by Franz Koller published in ABI-Technik 5(1986)3. - p. 234 - 239 is the most informative.

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by H.-J. Hartmann: On the problem of library integration (p. 49 - 56) and by I. Sallai: Some problems of building complex cultural facilities (p. 67 - 76)

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[25] Rock, L.B.: Furnishing and decoration of adapted buildings. - Part 2. - Budapest, 1985. - p. 1. -(7th IFLA Seminar on library building)

[26] cf. also Fundamentals of Library Construction: Library buildings. - Leipzig, 1985. - p. 183.

[27] Special library is a collective term for scientific libraries, whose function consists in meeting the demand for literature of a narrowly restricted subject. The term includes a number of libraries differing in size and function, e.g. Specialized institutions of higher learning, industrial enterprises, research institutions and health centers. Often the biggest special library of the country directs the network of similar libraries.

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[29] Fundamentals of Library Construction. - p. 174 - 189.

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